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DIRECT OPERATION OF LOW TEMPERATURE SOLID OXIDE FUEL CELLS USING OXYGENATED FUEL

Abstract

The present invention provides a method of operating a solid oxide fuel cell having an anode and a cathode using a methyl ether. The method of this embodiment comprises forming a first mixture comprising molecular oxygen and the methyl ether. The first reaction mixture is then heated to a sufficient temperature to form a second mixture comprising carbon monoxide and molecular hydrogen. Finally, the anode of a solid oxide fuel cell is in contact with the second gaseous mixture. In another embodiment, the invention provides a fuel cell system that utilizes the methods of the invention.